V. REMARKS

Claims 1-5 are pending. By this Amendment, the specification, drawings, and claims 1 and 3-5 have been amended. Reconsideration and allowance are requested in view of the above amendments and the following remarks.

5-1. Objections to the drawings

In the Office Action, the drawings are objected to because of several informalies. By this Amendment, FIGS 1-3 have been revised according to the Office's suggestions. Applicants thus respectfully request withdrawal of the objections to the drawings.

5-2. Objections to the specification and claims

In the Office Action, the disclosure and claims 1-5 are objected to for several informalities. By this Amendment, the specification and claims 1-5 have been revised to incorporate the Office's suggestions, with one exception as indicated below in the next paragraph. Applicants respectfully submit that no new matter has been added.

The Office asserts that in page 10, lines 4-8 of the specification of the current application, the disclosure including "K4*E>K3*L" is "contradictory, vague and indefinite" because "[i]t is not clear if it should be K3*E or K3*L." (See

Office Action, at page 6). Applicants respectfully traverse this assertion and submit that the expression "K4*E>K3*L" is clear and definite. As shown in the specification, in particular Table 1, the logical signals V1 and V2 are not generated by simple comparisons as the Office assumes. Although K3*E and K4*L are put into logical comparator 560, the value of logical signal V2 is not determined by K3*E and K4*L, but by K4*E and K3*L. (See page 10, first paragraph and Table 1 of the specification.) Applicants further address this issue below regarding the §112 and §101 rejections. Accordingly, Applicants respectfully request withdrawal of the objections.

5-3. 35 U.S.C. §112 rejections

In the Office Action, claims 1-4 are rejected under 35 U.S.C. §112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Specifically, the Office asserts that "the computation K1xE and K2xL obtain the same objective than K3xE and K4xL" and that "[i]t is unclear why the same thing is doing twice without obtain[ing] [sic] any gain value." (Office Action at pages 9-10). Applicants respectfully submit that in the above assertions, the Office misunderstands the current invention.

In the current invention, as shown by the specification, the values of logical signals V1 and V2 are determined, for example, according to Table 1 as follows:

	$E/L<K3/K4<1$	$K3/K4<E/L<K2/K1$	$E/L>K2/K1>1$
V1	1	1	0
V2	0	1	1
V	1	0	-1

--Page 10 of the current Application

Here if we assume that $K1=K3=K_E$ and $K2=K4=K_L$, Table 1 becomes:

	$E/L<K_E/K_L<1$	$K_E/K_L<E/L<K_L/K_E$	$E/L>K_L/K_E>1$
V1	1	1	0
V2	0	1	1
V	1	0	-1

As shown by the above table, even if $K1=K3=K_E$ and $K2=K4=K_L$, V1 is not always equal to V2 and the detector output V is not always equal to zero. Applicants submit that the Office misunderstands the invention, especially Table 1.

Regarding claim 4, the recitation "the third integer smaller than the third integer" is due to a typographical error and is revised as "the third positive integer smaller than the fourth positive integer." Accordingly, Applicants respectfully request withdrawal of the rejections based on 35 U.S.C. §112.

5-4. 35 U.S.C. §101 rejections

In the Office Action, claim 3 is rejected under 35 U.S.C. §101 because the claimed invention is allegedly not supported by either a method of tracking a resolved signal asserted utility or a well established utility. Specifically, the Office asserts that "[i]f K1=K3 and K2=K4 then V1=V2, so the detector output will always be zero independent of all the other parameters." (See, Office Action at page 10). Applicants respectfully traverse this assertion for the same reasons stated above regarding the 35 U.S.C. §112 rejections. Accordingly, Applicants respectfully request withdrawal of the rejections.

5-5. 35 U.S.C. §103(a) rejections

In the Office Action, claims 1-5 are rejected under 35 U.S.C. §103(a) as unpatentable over Crabtree et al. (USPN 4,606,051). Applicants respectfully traverse this rejection.

In the Office Action, the Office admits that Crabtree et al. "[generate] a detector output [only] from a difference between the first and the second value[,]" and lack a lot of features of the current invention. (See, Office Action at page 13). (Internal citation omitted). However, the Office asserts that in the current invention, "applicant is comparing E and L with a margin of 'qualification' error defined by the

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integers K1, K2, K3 and K4[.]" (Id., at page 12). The Office asserts that "[i]t would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method described by Crabtree et al. with a qualification error technique to obtain a faster convergence of the method." (Id., at page 13). (Internal citation omitted). Applicants respectfully traverse these assertions. In the current invention, the integers K1, K2, K3 and K4 are not simply so-called "quantification error techniques." Instead they play role in the determination of the values of the first and the second logical values. (See Table 1 at page 10 of the current application.) It is incomprehensible why the Office interprets those integers as "quantification error" and Applicants respectfully request clarification.

In addition, Crabtree et al. try to maintain equal magnitudes between E and L (see col. 5, lines 3-15), so the actual difference between E and L is the focus and Crabtree et al. could not add any so-called "quantification error technique" because such "quantification error technique" makes the determination of actual difference between the magnitudes of E and L fail and thus will defeat the principal of operation of Crabtree et al.

Moreover, Crabtree et al. are only concerned with the actual difference between the magnitudes of E and L, and with

eliminating the actual difference (col. 5, lines 3-15), while
the current invention generates logical values from the
comparison between the first and second (and between the third
and fourth) products, e.g., K1*E. The logic values are
determined through a complicated logic as shown by Table 1 of
the current invention (see page 10 of the current
application), not by the actual difference between E and L, as
Crabtree et al. disclose.

Further, the current invention produces two (first and
second) logic values and "generates a detector output signal
from a difference between the first logical value and the
second logical value." (Claim 1). Crabtree et al. do not
disclose logic values, and as the consequence, do not disclose
a difference between the two logic values.

In view of the foregoing, the current invention is not
obvious over Crabtree et al., and Applicants respectfully
request withdrawal of the rejections based on 35 U.S.C.
§103(a).

If the Examiner believes that anything further is necessary to place the application in condition for allowance, the Examiner is requested to contact Applicants' undersigned representative at the telephone number listed below.

Respectfully submitted,

Dated: 3/24/05

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IV. AMENDMENTS TO THE DRAWINGS

Please accept the attached replacement sheets of FIGS. 1-3.